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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,277	09/17/2003	Nicolay Y. Kovarsky	AMAT/7735/CMP/ECP/RKK	3455
44257	7590	07/12/2006	EXAMINER	
PATTERSON & SHERIDAN, LLP 3040 POST OAK BOULEVARD, SUITE 1500 HOUSTON, TX 77056			SMITH, NICHOLAS A	
			ART UNIT	PAPER NUMBER
			1742	
DATE MAILED: 07/12/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/664,277

Applicant(s)

KOVARSKY ET AL.

Examiner

Nicholas A. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 1-12 and 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Status of Claims**

Claims 1-12 and 15-17 remain for examination. Claims 13-14 and 18-21 have been cancelled.

### **Rejection Status**

The rejection of instant claim 1-12 and 15-17 based on 35 USC § 112 have been withdrawn in view of applicant's amendments to instant claims 1 and 9 on 04/25/2006.

The rejection of instant claim 1-12 and 15-17 based on 35 USC § 103 have been withdrawn in view of applicant's amendments to instant claims 1 and 9 on 04/25/2006.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 6-9 of copending Application No. 10/268,284. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

For instant claim 1:

- An electrochemical plating cell, comprising: a fluid basin configured to contain a plating solution; an anode fluid volume position in a lower portion of the fluid basin is disclosed in claim 1 of copending Application No. 10/268,284.
- A cathode fluid volume positioned in an upper portion of the fluid basin is disclosed in claims 1, 2, 4 and 8 of copending Application No. 10/268,284.
- an ionic membrane positioned to separate the anode fluid volume from the cathode fluid volume is disclosed in claims 1, 8 and 9 of copending Application No. 10/268,284.
- a plating electrode centrally positioned in the anode fluid volume is disclosed in claims 1, 2, and 4 of copending Application No. 10/268,284.
- a deplating electrode positioned radially outward from the plating electrode in the anode fluid volume, wherein the plating electrode comprises a disk member having a plurality of parallel slots formed therethrough, the plurality of parallel slots comprises a plurality of longer segments and a plurality of shorter segments is disclosed in claims 1-3 of copending Application No. 10/268,284.

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For instant claim 9:

- An electrochemical plating cell, comprising: an anolyte compartment is disclosed in claims 1, 6 and 7 of copending Application No. 10/268,284.
- a catholyte compartment positioned in ionic communication with the anolyte compartment via a cationic membrane is disclosed in claims 1, 2, 4, and 6-9 of copending Application No. 10/268,284.
- an anode positioned in the anolyte compartment is disclosed in claims 1, 2, 4, 6 and 7 of copending Application No. 10/268,284.
- a deplating electrode positioned in the anolyte compartment, wherein the anode is a disk shaped member having a plurality of parallel slots formed therethrough, the plurality of parallel slots comprises a plurality of longer segments and a plurality of shorter segments, and the deplating electrode circumscribes the anode is disclosed in claims 1-4 and 8 of copending Application No. 10/268,284.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 2-3, 8, and 10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 6-9 of copending Application No. 10/268,284 (US'284) in view of Woodruff et al. (US Patent No. 6,497,801).

In regards to instant claims 2, 3, 8 and 10, US'284 does not specifically disclose an insoluble, platinum-coated anode.

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Woodruff et al. '801 teach an electroplating apparatus with multiple concentric anodes. The anodes are composed of titanium with a platinum coating (column 6, lines 3-5). It would have been obvious to one of ordinary skill in the art at time of the invention to modify the plating cell of US'284 by replacing one or both of the copper anodes with insoluble platinum-coated anodes as taught by Woodruff et al. '801, in order to avoid the expense of replacing the consumable copper anodes as taught by Woodruff et al. 801 (column 5, line 66 to column 6, line 5).

Claims 4, 11-12 and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 6-9 of copending Application No. 10/268,284 (US'284) in view of Woodruff et al. (US Patent No. 6,497,801) and further in view of Mayer et al. (US Patent 6,773,571).

In regards to claims 4, 11 and 12, US'284 does not specifically disclose an auxiliary electrode positioned to circumscribe the central inert anode and that they are in substantially the same plane both with substantially planar upper surfaces or a deplating electrode that would be vertically movable relative to the upper surface of the anode.

Mayer et al. teach that the auxiliary electrode is positioned to circumscribe the central inert anode and that they are in substantially the same plane both with substantially planar upper surfaces (see Figures 4 and 5). It would have been obvious to one of ordinary skill in the art at time of the invention to modify the plating cell of US'284 in view of Woodruff et al. by replacing the deplating electrode circumstantially about the central anodes as taught by Mayer et al., in order to match up coincidentally with the circular surface area of the semiconductor wafer workpiece (Mayer et al., col. 3,

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lines 20-31). Furthermore, the deplating electrode taught by Mayer et al. would inherently be constructed such that the upper surface of the deplating electrode would be vertically movable relative to the upper surface of the anode. For example, the electrodes would be moved in this manner when being removed from the cell.

In regards to claim 15, US'284 does not specifically disclose an insulative spacer positioned between the disk-shaped electrode and the annular electrode.

Mayer et al. teaches an insulative spacer positioned between the disk-shaped electrode and the annular electrode (element 129, see column 10 lines 26- 27). It would have been obvious to one of ordinary skill in the art at time of the invention to modify the plating cell of US'284 by an insulative spacer as taught by Mayer et al., in order to shape current density in the electrolyte (Mayer et al., col. 10, lines 16-18).

This is a provisional obviousness-type double patenting rejection.

Claims 5-7 and 16-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 6-9 of copending Application No. 10/268,284 (US'284) in view of Mayer et al. (US Patent 6,773,571).

In regards to claim 5, Mayer et al. is applied for the same reasons as stated above for instant claim 15.

Regarding claims 6, 7, 16 and 17, Mayer et al. teaches an electroplating cell as described in claim 1 above. Furthermore, Mayer et al. teaches that the power supply (inherent in circuit 117) is configured to individually address each electrode and provide a different amount of current to each one (see column 3, lines 35-47; column 9, line 67

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to column. 10 line 2; and Figure 4). Mayer et al. does not expressly teach that one electrode is cathodically biased and the other is anodically biased. However, the ability to have this configuration is inherent to the apparatus of Mayer et al., because Mayer et al. teaches that the electrodes are individually addressable (i.e., a different current is applied to each one). Furthermore, the limitation of biasing the electrodes with a certain polarity is directed to a manner of operating the apparatus, and does not provide any structural limitation. Therefore, these limitations are not given patentable weight. See MPEP 2114.

This is a provisional obviousness-type double patenting rejection.

***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

The feature of the plating electrode comprises a disk member having a plurality of parallel slots formed therethrough, the plurality of parallel slots comprises a plurality of longer segments and a plurality of shorter segments is a patentable feature. Prior art only suggests disk anodes, torrodial anodes, or perforated anodes. The instantly claimed, slotted anode would provide a substantially different flow-field than the flow-field produced by its closest prior art counterpart, a perforated anode (or a perforated diffuser plate or membrane). The applicant has provided a sufficient disclosure for supporting the need for such a flow-field on pages 8-9 of the instant specification. Therefore, independent claims 1 and 9, as well as dependent claims 2-8, 10-12 and 15-17 would be allowed subject matter if the double patenting rejection were overcome.

### ***Response to Arguments***

Applicant's arguments, see remarks, filed 4/25/2006, with respect to the rejection(s) of claim(s) 1, 5-7, 9, 12 and 16-17 under Mayer et al. (US Patent 6,773,751) in view of Woodruff et al. (US Patent 6,916,412) and the rejection(s) of claim(s) 2-4, 8, 10-11, and 15 under Mayer et al. in view of Woodruff et al. '412 and further in view of Woodruff et al. (US Patent 6,497,801) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of copending Application No. 10/268,284 as stated above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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